several other bank-sections may also be extended to this depth. While working in this region it will be proper to call at Bodoe.

A series of observations of temperature made in West Fiord with the newest deep-water thermometers will be carried out both during the voyage northwards in June and during the return voyage in August, in order to examine the abnormal state of things found there in the summer of 1875, the minimum temperature being at a depth of seventy fathoms. As the zoological surveys in West Fiord have hitherto only embraced the fauna of the coast, the opportunity will be sought to be utilised for zoological work in this fiord at a greater distance from land.

Magnetic absolute observations will be carried out at Rœst, where circumstances, from Lieut. Petersen's observations in 1875, appear favourable, and where the most projecting point is found for comparison with the proposed observations on the Greenland ice.

In the course of June it is supposed, with average weather, and with the experience gained last year, that the survey of the banks and of the Umbellularia Region according to this plan will have reached the latitude of Tromsœ.

The expedition will in the end of June or beginning of July, be equipped for a cruise to the westward, going first along the line Andœ, Jan Mayen, surveying it and its neighbourhood on both sides. Round the north-east end of Jan Mayen as a centre, several series of soundings are to be taken towards the north-east, the north, and the north-west. For in that neighbourhood where the outermost mountain of the Iceland volcanic region is supposed to be, the bottom appears to sink very rapidly towards the deep sea in the directions named.

Provided Jan Mayen can be reached, it is proposed to land on it for the purpose of undertaking an examination of its geography, geology, hydrography, zoology, botany, &c. It is also intended to make a survey of the sea on the west and south sides of Jan Mayen, for there is ground for supposing that Jan Mayen is connected with Iceland by a sub-oceanic ridge.

In order to examine the phenomena at the boundary between the warm surface current from the Atlantic and the cold polar current in the Greenland sea, the Greenland ice north-west of Jan Mayen will be visited. When the examination of a part of the Greenland ice is completed the course will be taken to a point about midway between Iceland and Jan Mayen, and the cross-section is to be examined from this point in the direction of Ranen with the view of discovering and exploring the supposed sub-oceanic ridge. When this cross-section is worked out to the Norwegian Umbellularia region, previously examined, the expedition will sail to Tromsœ to carry on work to the northward, if time permit.

As July is supposed to be devoted to the Jan Mayen cruise, the first half of August will be employed in a survey of the banks, the "Havbro," and part of the Polar Sea between Norway and South Spitzbergen. The eastern limit will be the line North Cape, Bear Island, South Cape. The latter half of August will be devoted to the return voyage to Bergen and dismantling. The scientific work will be carried out mainly in the same way as in 1876. In the zoological work, along with the use of the dredge, the trawl, and the swab, special weight is laid on the use of nets in the intermediate depths and fishing on the banks. On Jan Mayen the capture of birds ought to be an object of importance, and on the Greenland ice possibly seal and bear-hunting, &c.

In taking soundings the form and extent of the banks is to be determined, and the way in which the bottom falls off from these to the greatest depths of the polar sea. It is of fundamental importance for understanding the orography and geology of this sea and the neighbouring land and for the distribution of animal life, whether the bottom falls off towards the deep sea with an even slope or in terraces and escarpments with plateaus lying between. The position and number of the soundings is therefore to be determined with this view.

The measurements of the temperature in the deep sea are to be carried out to the extent necessary for a certain determination of the isotherms in the deep water of the cross-sections. It is also to be kept in view that the points in the cross-sections may be used for longitudinal sections. The newest deep-sea thermometers are to be used as frequently as possible, along with those employed last year.

At every sounding a specimen of water is to be taken from the bottom, and at chosen places at intermediate depths. The specific gravity of all specimens is to be ascertained. At every sounding, also, specimens of the bottom are to be taken and preserved for future examination, which is also to be done with the material of the bottom brought up by the dredge and trawl.

The chemical work is to be carried on mainly as last year. The specific gravity of the surface-water is to be determined once or twice a day, and oftener at places where the state of the currents or other circumstances render it desirable. Observations of the currents in the sea are to be carried out where circumstances make it desirable, and the weather permits.

Magnetic observations are to be carried out on board at sea, special weight being laid on obtaining declination observations. Absolute determinations are to be carried out at Rœst, and on the Greenland ice, besides the determination of the ship's magnetic constants at Husœ, and elsewhere where possible.

A geological survey is to be made of Jan Mayen, if a landing there is possible, to the extent circumstances may permit. It would be of great interest to carry out astronomical determinations of geographical position, topographical and hydrographical surveys on Jan Mayen. A determination of geographical position at Rœst, in connection with the magnetic observations, is also desirable, as the place is not connected with the trigonometrical net.

Botanical observations and collections are to be carrried out on Jan Mayen to the greatest possible extent.

The meteorological observations on board are to be carried out in all essential points as in 1876. H. MOHN.

NOTES

AMONG those on whom honours were conferred on the occasion of Her Majesty's birthday, was Dr. J. D. Hooker, President of the Royal Society and Director of the Royal Gardens, Kew. Dr. Hooker has been made a K.C.S.I.

THE twenty-sixth annual meeting of the American Association for the Advancement of Science commences at Nashville on August 29. Our own association meets at Plymouth this year on August 15, under the presidency of Prof. Allen Thomson, of Glasgow.

WE have received the programme of an Anthropological Exhibition to be held in connection with the Paris International Exhibition of 1878, under the superintendence of the Paris Anthropological Society. That Society has nominated a large Commission to organise the exhibition, with Prof. de Quatrefages as president. M. Krantz has placed at the disposal of the Society a spacious and fine position in the central pavilion of the Trocadero Palace. The Commission makes a warm appeal to all interested in the progress of the anthropological sciences, both in France and abroad. It wishes to prepare a complete inventory of the present state of these sciences. The following are the classes under which the exhibition will be arranged:—1. Crania and bones, mummies, and specimens relating to the comparative anatomy of the human races; 2. Instruments, methods of education; 3. Prehistoric and ethnological collections; 4. Photographs, paintings and drawings, sculpture, and modelling; 5. Geographical maps and tables relating to ethnology, prehistoric archæology, linguistic, demography, medical geography, &c.; 6. Books, journals, brochures. In order to facilitate the work of collection and arrangement, the Commission has appointed the following members to superintend the special departments named:—Dr. Broca, 1, rue des Saints-Pères, for what concerns Anthropological Societies; Dr. de Ranse, 4, place St. Michel, Anthropological Instruction; Dr. Topinard, 97, rue Rennes, General Anthropology and Craniology; M. Gabriel de Mortillet, Château de St. Germain-en-Laye (Seine-et-Oise), Prehistoric Archæology and Anthropology; M. Girard de Rialle, 64, rue de Clichy, Ethnography of Europe; M. Abel Hovelacque, 35, rue de l'Université, Linguistic Anthropology; Dr. Dureau, 16, rue de la Tour-d'Auvergne, Bibliography; Dr. Bertillon, 20, rue Monsieur-le-Prince, Demography, or the Statistical Study of Population, and Medical Geography; M. Louis Leguay, 3, rue de la Sainte-Chapelle, for all concerning the general management and arrangements. Each of the gentlemen named should be communicated with in relation to all concerning his special department. The programme is a very inviting one, and if successfully carried out the result must be highly interesting and valuable. We hope British anthropologists will do all in their power to help the Commission to carry out their aims.

THE Maritime and Piscatorial Exhibition, which was opened at the Aquarium on Monday, contains a large collection of stuffed river fish—the largest collection, probably, ever brought together. Fourteen angling clubs, and many private individuals, have sent contributions. The Prince of Wales has also lent his collection of Indian fish obtained during his tour, and there is also a collection from the Indian Museum. As the exhibition includes, among other things, all subjects connected with fishing, there is a good show of fishing-tackle, and with them a fine set of flies. Those by Mr. Ogden Smith are quite works of art. Messrs. Sotheran and Co. have, at considerable trouble, made a collection of books on fish and pisciculture, which deserves attention.

A HUNGARIAN prelate, the Archbishop Louis of Haynald, has constructed an astronomical observatory at his own expense at Kalocsa, lat. 46° 31′, long. 16° 32′. Among the instruments are a Browning telescope, a small (4-inch) Merz refractor, and a Cooke transit instrument. The arrangement of the new observatory is superintended by M. de Konkoly, already known as having built on his own property, O-Gyalla, a well-furnished observatory. We may add that the Archbishop of Haynald has already devoted considerable sums to botanical researches.

THE *conversazione* of the Society of Arts is fixed to take place at the South Kensington Museum, on Wednesday, June 27.

THE Commission appointed by the U.S. Government to examine Capt. Howgate's proposal for the establishment of an exploring colony within 400 miles of the North Pole recommend that 50,000 dollars be granted for the purpose.

AT the meeting of the Zoological Society of France on June 1, M. Perier, Professor of Conchology at the Paris Museum, explained that the number of specimens was far too large to be properly exhibited in the galleries, and that consequently it had been resolved to exhibit only specimens of each genus, and to have the types of species arranged systematically in drawers. Each species is to be entered in an alphabetical and systematic catalogue, so carefully compiled that the information it contains may be got at instantly. Any visitor wanting to inspect a particular species will have only to make an application to the galleries for conchology. The work is immense, but it is supposed that in ten years it will be completed.

THE French Society of "Amis des Sciences," instituted twelve years ago for distributing pensions to the families of deceased men of science or to *savants* themselves when incapacitated by old age, has held its anniversary meeting under the presidency of Prof. Berthelot. The report was read by M. Pasteur. It shows that the assets of the Society amount to 19,000*l*. The sum spent in pensions was 1,200*l*. last year. An *éloge* of M. Charles Sainte Claire Deville was read by M. Fouquier, his successor as professor at the Collége de France.

WE have received the yearly report for 1876–7 of the new Scientific Club of Vienna, and its perusal is well calculated to fill a cultured Londoner of moderate means with envy. For an entry money of five florins and a yearly contribution (payable quarterly !) of sixteen florins all the advantages of a good London club can be obtained combined with those of the Royal Institution. The club possesses a spacious building with lecture-halls, reading and conversation-rooms for smokers and non-smokers, writing-rooms, refreshment-rooms, splendid library, all the best journals of every kind from all parts of the world. During the greater part of the year there are scientific and other lectures, entertainments and receptions, excursions during summer, and it is contemplated to publish a weekly journal connected with the affairs of the club. The members, numbering already upwards of 500, belong to all classes of society and to all professions, their only bond of union being a desire for cultured intercourse. The only institution in London at all approaching to this Vienna club is the modest German Athenæum.

UNDER the care of Dr. P. P. C. Hoek there has been published in German a *catalogue raisonné* of zoological works and papers that have appeared in the Netherlands during 1875–6. There are in all eighty-seven titles. The title is "Die Zoologie in den Niederlanden," and the publishers are E. J. Brill, of Leiden, and C. F. Winter, Leipzig.

INTELLIGENCE received at New York, June 1, from the Sandwich Islands announces that simultaneously with the earthquake at Iquique, Peru, a tidal wave struck the group of islands on May 10, between 4 and 5 A.M. The sea suddenly receded and returned with great violence in a wave sixteen feet high, which entered the harbour at Hilo, and swept away the wharves and storehouses in the front part of the town. All the houses at Waiakin within 100 yards of the shore were destroyed. Five persons were drowned; many were picked up in the harbour. The earthquake undulations continued during the day, the difference between the highest and lowest water-mark varying from three feet to thirty-six feet in various parts of the islands. Cocoanut (*sic*, but probably Molokai) island was entirely submerged, and the hospital at that place was swept away. A fresh eruption of the Kilauea volcano commenced simultaneously with this oceanic disturbance. The same earthquake wave was also felt all along the Mexican Pacific Coast. Late particulars announce that great devastation and loss of life were caused by the tidal wave which swept the Peruvian coast. Six hundred persons are reported to have perished.

IN connection with the above the following is of interest:—A Press despatch from Washington, of May 12, states that Assistant-George Davidson telegraphs to C. P. Patterson, Superintendent of the Coast Survey, in relation to the earthquake waves registered in the tide-gauge at Fort Point, at the entrance of San Francisco Harbour, to the following effect:—"Sharp earthquake waves commenced on Thursday, May 10, at 6.18 a.m., five rises and falls of 9 in. in 80 minutes; then nine *maxima* or crests 48 minutes apart, with secondary *maxima*, the largest of which were 15 in.; then six sharp rises of 14 in. each to irregular broken crests one hour apart; then to 5 A.M. Friday, double *maxima* as at the commencement, the largest rise being 18 in. From 5.20 A.M. Friday, to 1.15 P.M., irregular *maxima*, then a sudden fall of 16 in., and action, continuing until 5 P.M. No well-defined *maximum* of action, but exhibitions of markedly different character. It may be stated that the earthquake wave of the great earthquake in Japan some years ago was twenty-three minutes in traversing the Pacific to San Francisco."

ON Monday afternoon, about 3.30, a tornado partially destroyed Mount Carmel, a flourishing town of 3,000 inhabitants on the Wabash River, South-Eastern Illinois. It struck the town on the southern quarter and passed north, destroying almost everything in its path. Three churches, two newspaper offices, two schools, the Court-house, and 120 buildings were demolished. The ruins caught fire, burning almost till midnight before the flames were extinguished. Many persons were killed or injured.

ON the vote in Parliament last Thursday to complete the sum of 24,569*l*. for the Patent Office, Dr. Playfair remarked that while the Government derived a revenue of 180,000*l*. from the inventors of this country, it made them a very insignificant return. Only about 2,000*l.* was spent upon a Patent Museum. The Patent Museum at South Kensington was very inferior to the corresponding institutions in France and America, and if we had such a museum at all it ought to be a good one, and such as would promote invention. He wished to ask whether the Government had bought or rented a large building for the purposes of an efficient Patent Museum? Mr. W. H. Smith explained that the space intended for the Patent Museum at South Kensington had been taken up by the collection of scientific apparatus, but that the Government still intended to arrange for a suitable exhibition of inventions.

A NOTE has been circulated in German papers, warning parents against the use of india-rubber toys manufactured in France and sold largely on the north of the Rhine. They were said to be poisonous owing to a certain quantity of oxide of zinc which was mixed with vulcanised india-rubber. The French Minister of Agriculture and Commerce ordered an inquiry to be made by the Council for Public Health, and the result is a declaration that these objects are quite harmless.

ACCORDING to recent news received by M. Sidoroff as to the mammoth discovered in Siberia, the carcass was found in the gold-bearing sands of a gold-washing on the river Kundola, at a depth of five mètres. The flesh was very soft and of a light red colour when freshly dug out, but soon hardened, becoming like a white clay. It seems to be much impregnated with lime. The digging out of the whole body will be very difficult because of the access of water. M. Polyakoff has already left St. Petersburg for the excavation of the body.

A TASHKEND telegram, dated May 10, announces that the Russian embassy, sent last spring to Kurl, has made a thorough survey of the route it followed, together with numerous barometrical measurements of heights. Capt. Kuropatkin and the naturalist M. Wilken, have explored the lake Bastan-nor and the route to Karashar, twenty-seven miles east of Kurl, whilst Lieut. Senorguroff has explored and surveyed the route from Aksu to Karakol, following the Babel pass.

AT the last meeting, May 16, of the Russian Geographical Society, it was agreed to postpone the exploration of the Angara river until next year, whilst the exploration of the water-parting between the Obi and the Yenissei will be made during this summer. Besides, M. Sonirnof undertakes a tour in Russia for magnetical measurements.

WE learn from the *Gardeners' Chronicle* that Prof. Boulger, the Professor of Natural History at the Royal Agricultural College, Cirencester, is preparing a "Flora" of Gloucestershire, and will be glad of any information as to rare species, localities, &c.

A COMMITTEE has been formed having for its object the presentation of a testimonial to Mr. F. W. Wilson, whose connection with the Crystal Palace, after twenty-five years' service, has just terminated. During the past quarter of a century Mr. Wilson, by his genial disposition, obliging manners, and thoroughly zealous efforts to promote and successfully carry out the various interesting natural history and other exhibitions held at the Crystal Palace, has earned the respect both of his colleagues and the general public.

OUR Paris correspondent writes: We were present at the Alliance Electric Works to witness an experiment on the new caolin-light, which we had seen in operation at the Physical Society, and which was recently described in NATURE. The Ruhmkorf machine was fed by a more powerful primary current given out by an Alliance electro-motor of three-horse power. The bar of caolin, ignited by induction-spark, was eight centimetres long, and fully equal to eight gas-burners. At the same time three so-called electric candles were in operation, each of them giving about forty gas-burners, and fully equal to five caolin lights. Consequently not less than twenty-five lights could be fed at once in separate parts of the same building or at any distance. The light is admirable for its constancy and duration; the quantity of caolin destroyed is quite insignificant—no more than 1 mm. per hour; the thickness of the caolin plate or bar used is not more than 4 millimetres. The electric candles are formed, as is known, by two graphite bars separated by a caolin bar. It was proved that the agitation of the candlestick produces no interruption of the current. Consequently a single Alliance-work machine can feed the three lights required by the regulations for steamers. The graphite pencils are consumed at the rate of eight centimetres per hour, which is a difficulty; but it is expected that any length required may be supplied by means of a proper clock-work. Experiments were tried on the same day at the Palais de l'Industrie for the purpose of illuminating the exhibition of pictures with electric light. The ordinary Gramme machines were set into operation. The light was found steady, but the effect was not quite favourable artistically. It is expected that with the system of light division, an improvement may be effected. The experiments were made in order to test whether electric light may be utilised on the occasion of the forthcoming International Exhibition.

IN connection with the above we may state that the experiment with Jablochkoff's electric light at the West India Docks on Tuesday night, was not quite successful, owing to some part of the apparatus going wrong. The experiment is, however, we believe, to be repeated.

THE destruction of agricultural and garden produce by the systematic attacks of insects is yearly becoming more and more serious. The gravity of this subject has been felt of late years not only by the growers of food crops themselves, but by scientific men, especially entomologists, and it is therefore with satisfaction we notice that some steps have been taken to obtain accurate records of the habits and conditions most favourable to the development and increase of certain well-known insects that devastate our crops. A little pamphlet called "Notes for Observations of Injurious Insects" has recently been issued by Mr. T. P. Newman, of 32, Botolph Lane, E.C. In these notes the necessity of such observations is pointed out, not only on scientific grounds, but also with a view to diminish the yearly losses of food crops to the country. The "Notes" are illustrated with woodcuts of many well-known insect depredators as a guide to their identity, and a ruled sheet is furnished for entering the records and any remarks that may appear desirable. These, as well as the "Notes" themselves, are to be obtained *free* on application to the printer, as above, and any information required will be furnished by the Rev. T. A. Preston, the Green, Marlborough, or by Mr. E. A. Fitch, Maldon, Essex.

MR. OSCAR BROWING, in lecturing on Friday evening last at the Royal Institution on the history of education, drew attention to the science of teaching being in advance of the art. He urged that, like medicine, pædogogics should be made a science of observation on results obtained. Teachers should interchange experiences on results as well as on theory.

THE additions to the Zoological Society's Gardens during the past week include a Mesopotamian Fallow Deer (*Cervus mesopotamicus*), an African Leopard (*Felis pardus*), a Cheetah (*Felis jubata*) from South Africa, a Humboldt's Lagothrix (*Lagothrix humboldti*) from South America, deposited; a Prevost's Squirrel (*Sciurus prevosti*) from Malacca, purchased; a Black-backed Jackal (*Canis mesomeles*) from South Africa, presented by the Earl of Guildford.